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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/561,730	12/22/2005	Kyungseok Cho	NY-TECHVIL-224-US	1112
24972	7590	07/03/2006	EXAMINER	
FULBRIGHT & JAWORSKI, LLP 666 FIFTH AVE NEW YORK, NY 10103-3198			VERDIER, CHRISTOPHER M	
			ART UNIT	PAPER NUMBER
			3745	
DATE MAILED: 07/03/2006				

Please find below and/or attached an Office communication concerning this application or proceeding.

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<b>Office Action Summary</b>	<b>Application No.</b>	<b>Applicant(s)</b>	
	10/561,730	CHO ET AL.	
	<b>Examiner</b>	<b>Art Unit</b>	
	Christopher Verdier	3745	

**-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --**  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) ☐ Responsive to communication(s) filed on \_\_\_\_.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) ☒ Claim(s) 1-7 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-7 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 22 December 2005 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_.
  3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

- |   |   |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)   | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. ____. |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)  | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date <u>12-22-05</u> . | 6) <input type="checkbox"/> Other: ____.  |

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Receipt and entry of Applicant's Preliminary Amendment dated December 22, 2005 is acknowledged.

### ***Drawings***

Figures 1-2 should be designated by a legend such as --Prior Art-- because only that which is old is illustrated. See MPEP § 608.02(g). Corrected drawings in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. The replacement sheet(s) should be labeled "Replacement Sheet" in the page header (as per 37 CFR 1.84(c)) so as not to obstruct any portion of the drawing figures. If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

### ***Specification***

The abstract of the disclosure does not commence on a separate sheet in accordance with 37 CFR 1.52(b)(4). A new abstract of the disclosure is required and must be presented on a separate sheet, apart from any other text.

The abstract of the disclosure is objected to because it contains the phrase "The present invention" (line 1) which is implied and should be deleted, because in line 6, "at" should be deleted, and because in line 7, "defined by the remainder" is unclear. Correction is required. See MPEP § 608.01(b).

The disclosure is objected to because it is replete with grammatical errors too numerous to mention in all instances. The following are several examples of defects: The specification should be carefully checked for additional defects. Appropriate correction is required.

On page 3, line 22, "the" (last occurrence) should be deleted.

On page 4, line 19, "Serial" should be deleted.

On page 7, line 1, "at" should be deleted.

On page 7, line 10, "at" should be deleted.

On page 9, line 2, "vortex" should be changed to -- a vortex --.

On page 9, line 12, "of" (second occurrence) should be deleted.

On page 10, line 12, "the" (first occurrence) should be deleted.

On page 10, line 22, "the" (last occurrence) should be deleted.

On page 12, lines 16-17 and 28-29, "defined by the remainder" is unclear.

On page 12, lines 20 and 23, "an" should be changed to -- a --.

On page 13, lines 1 and 4, "an" should be changed to -- a --.

### ***Claim Objections***

Claims 1-7 are objected to because of the following informalities: Appropriate correction is required.

In claim 1, line 8, "at" should be deleted.

In claim 4, line 2, "at" should be deleted.

***Claim Rejections - 35 USC § 112***

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 1-7 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. In claim 1, lines 9-10, “the remainder” is unclear as to which element this is intended to refer to. In claim 4, line 2, “a radius r” is a double recitation of the radius r in claim 1. In claim 4, lines 3-4, “the remainder” is unclear for the same reason with regard to claim 1, lines 9-10. In claim 5, line 3, “Us/Uz” is unclear, because the claim does not define these terms. In claim 7, line 2, “a radius r” is a double recitation of the radius r in claims 1 and 4.

***Claim Rejections - 35 USC § 102***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1-2 and 6, as far as they are definite and understood, are rejected under 35 U.S.C. 102(b) as being anticipated by Cho 6,398,492 (figures 3-5 and 8). Note the guide blade 35 of an axial flow fan shroud 30 comprising a leading edge 35b for introducing the air blown by an axial flow fan 10 including a plurality blades 12, a trailing edge 35c extended from the leading edge to downstream, and an air flow guide surface 35a for guiding the blown air between

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the leading and trailing edges, wherein a first outlet area is defined by a radius  $r$  from a root in the total length  $R$  of an angle of projection of the guide blade and a second outlet area is defined by the remainder, the angle of projection increases as approaching a tip with respect to an axial line in the second outlet area (see figure 8). The second outlet area has a radial ratio  $r/R$  (measured from figure 8) of about 0.57 with respect to the total length of the guide blade 35. The air flow guide surface is curved into the form of an arc between the leading edge and the trailing edge.

Claims 1-2 and 6, as far as they are definite and understood, are also rejected under 35 U.S.C. 102(b) as being anticipated by Tsubakida 6,024,536 (figures 6 and 9). Note the guide blade 21 of an axial flow fan shroud 10 (as shown in figure 2) comprising an unnumbered leading edge for introducing the air blown by an axial flow fan 6 including a plurality of unnumbered blades, an unnumbered trailing edge extended from the leading edge to downstream, and an unnumbered air flow guide surface for guiding the blown air between the leading and trailing edges, wherein a first outlet area is defined by a radius  $r$  from a root in the total length  $R$  of an angle of projection of the guide blade and a second outlet area is defined by the remainder, the angle of projection increases as approaching a tip with respect to an axial line in the second outlet area (see figure 6). The second outlet area has a radial ratio  $r/R$  of 0.4-0.7 (column 5, lines 49-57) with respect to the total length of the guide blade. The air flow guide surface is curved into the form of an arc between the leading edge and the trailing edge (column 6, lines 2-5).

***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

Claim 3, as far as it is definite and understood, is rejected under 35 U.S.C. 103(a) as being unpatentable over Cho 6,398,492. Cho 6,398,492 (figures 3-5 and 8) discloses a guide blade of an axial flow fan shroud substantially as claimed as set forth above, having the angle of projection of the guide blade, with the outlet angle of projection gradually increasing from 0 degrees to about 30 degrees as measured from figure 8, but does not disclose that the angle of projection gradually increases to about 60 degrees.

The angle of projection of the guide blade at its outlet is known to be a result-effective variable which influences the noise, performance, and efficiency of the axial flow fan. It would

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have been obvious at the time the invention was made to a person having ordinary skill in the art to select the outlet angle of projection of the guide blade such that it extends within a specific range, such as from 0 to 60 degrees, for the purpose of optimizing the noise, performance, and efficiency of the axial flow fan, since it has been held that discovering an optimum value of a result effective variable involves only routine skill in the art. *In re Boesch*, 617 F.2d 272, 205 USPQ 215 (CCPA 1980).

Claims 4-5 and 7, as far as they are definite and understood, are rejected under 35 U.S.C. 103(a) as being unpatentable over Cho 6,398,492. Cho 6,398,492 (figures 3-5, 8, and 10) discloses a guide blade of an axial flow fan shroud substantially as claimed as set forth above, having a first inlet area defined by the radius  $r$  from the root in the total length of an angle of incidence of the guide blade and a second inlet area defined by the remainder, the second inlet area having a radial ratio  $r/R$  (measured from figure 8) of about 0.57 with respect to the total length of the guide blade 35. As seen in figure 5, the air flow guide surface is so curved that the angle of incidence  $A_{in}$  is the same as an air inflow angle  $\arctan(U_s/U_z)$  in the first inlet area, with the angle of projection being 0 degrees with respect to the axial line A.L. An auxiliary ring 36 is formed by the radius  $r$  from the root of the total length of the guide blade, the auxiliary ring partitioning the first and second inlets areas and the first and second outlet areas.

However, Cho does not disclose that the angle of incidence gradually increases up to about 90 degrees in the second inlet area. Rather, the angle of incidence gradually increases up to about 75 degrees in the second inlet area (figure 10).



The angle of incidence of the guide blade at its inlet is known to be a result-effective variable which influences the noise, performance, and efficiency of the axial flow fan. It would have been obvious at the time the invention was made to a person having ordinary skill in the art to select the angle of incidence of the guide blade at its inlet of the guide blade such that it extends within a specific range, such as up to about 90 degrees, for the purpose of optimizing the noise, performance, and efficiency of the axial flow fan, since it has been held that discovering an optimum value of a result effective variable involves only routine skill in the art. *In re Boesch*, 617 F.2d 272, 205 USPQ 215 (CCPA 1980).

#### ***Prior Art***

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

McMahan, Fujinaka (figures 4-7) and Coup are cited to show axial flow fan guide blades having the angle of projection at the outlet increasing as approaching a tip with respect to an axial line in a second outlet area. These references could also have been applied as they anticipate at least claim 1 under 35 U.S.C. 102, but are not applied at this time in order to avoid multiple rejections.

Cho '363 is cited to show an axial flow fan assembly with a curved shroud structure.


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Any inquiry concerning this communication or earlier communications from the examiner should be directed to Christopher Verdier whose telephone number is (571) 272-4824. The examiner can normally be reached on Monday-Friday from 10:00-6:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Edward K. Look can be reached on (571) 272-4820. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

C.V.  
June 19, 2006

  
Christopher Verdier  
Primary Examiner  
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